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Abstract

Methane Hydrate Production from Alaskan Permafrost

This proposal addresses an urgent need to augment the US natural-gas production capacity. It is specifically designed to address the objectives of the U.S. DOE Methane Hydrates R&D program: "to promote and apply advances in exploration and production to understanding and development of gas hydrates as a resource." This project builds on previous and on-going efforts in the geoscientific, academic and other research communities to identify, quantify and predict production potential of hydrates. The goal of this project is to obtain the field data required to verify geological, geophysical and geochemical models of hydrates and to plan, design and implement a program to safely, economically, and environmentally responsibly drill and produce gas from Arctic hydrates.

The project will utilize the best resources and ideas from around the world to implement the technology in the field. The project is proposed and will be managed by three American companies, each well known and respected in the worldwide oil and gas industry. In addition, a group of seven special technical advisors (each with significant experience in hydrate resources) from industry, universities and government have agreed to serve on a special technical advisory committee.

The 28-month project consists of two phases with these major objectives: 1) evaluate existing best technology to drill, complete and produce gas hydrates; 2) plan

and drill, core, test and instrument three gas-hydrate wells in Northern Alaska; 3) characterize the resource through geophysics, logging, engineering and geological core and fluids analysis; 4) test and then monitor gas production from the hydrate wells for one year; 5) quantify models/simulators with actual field data; 6) learn how to identify favorable stratigraphic intervals that enhance methane production; 7) assess the commercial viability of developing this resource and develop a long-term production plan; 8) provide real hydrate core samples for laboratory testing; 9) develop and test physical and chemical methods to stabilize hydrate wellbores and improve core recovery; 10) step outside of the well-known Prudhoe Bay/Kuparuk River area to further delineate hydrate deposits in Alaska; and 11) report the results to the DOE and transfer technology to the Industry.